Claims

What is claimed is:

1. A robust method for image feature estimation comprising:
   a. receiving at least one learning image input;
   b. accumulating a weight image from the at least one learning image;
   c. processing the input image using the accumulated weight image to produce a weight image output

2. The method of claim 1 wherein the accumulated weight image comprises a weighted mean image.

3. The method of claim 1 wherein the accumulated weight image comprises a weighted mean of square image.

4. The method of claim 1 wherein the accumulation rule includes an exponential type moving average.

5. The method of claim 1 wherein the accumulation rule includes a simple average.

6. The method of claim 1 wherein the weight image is derived from an intra-weight image mixed with an inter-weight image.

7. The method of claim 6 wherein the mixing method is a minimum operation.

8. The method of claim 6 wherein the mixing method is a simple average operation.

9. The method of claim 6 wherein the mixing method is a maximum operation.

10. The method of claim 1 wherein the weight image is derived from mixing
    a. an intra-deviation image
    b. an intra-weight image;
    c. an inter-deviation image;
    d. an inter-weight image.

11. A robust method for image feature estimation comprising:
    a. receiving at least one image input;
    b. adjusting a weight image by iteration responsive to a cost function

c. estimating using the adjusted weight image to produce a fitting result.

12. The method of claim 11 wherein the weigh image is modified using a factor that is a non-increasing function of the fitting error.

13. The method of claim 12 wherein the factor is a function of a parameter T.

14. The method of claim 13 wherein a simulated annealing method is used to modify the weight image.

15. The method of claim 14 wherein T is non-increasing with respect to the number of iterations.

16. The method of claim 13 wherein T is a constant.

17. The method of claim 11 wherein adjusting a weight image by iteration further comprises

    a. performing fitting using an adjusted weight image to generate a fitting result;

    b. determine cost function values from the fitting result;

    c. adjusting the weight image using cost function values;

    d. repeat steps a, b, and c until a stopping criteria is met.

18. The method of claim 17 wherein the stopping criteria is determined by the maximum allowable error.

19. The method of claim 17 wherein the stopping criteria is determined by the maximum allowed number of iterations.